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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,815	04/28/2006	Jonas Scherble	285453US0PCT	6973
22850	7590	05/19/2009		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
LENIHAN, JEFFREY S				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/577,815

**Applicant(s)**

SCHERBLE ET AL.

**Examiner**

Jeffrey Lenihan

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 January 2007.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-12 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 28 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date 04/28/2006  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 11 is objected to because of the following informalities: replace "load speaker" with "loudspeaker." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 2, 5, and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1 recites "optionally heat-conditioned and then is foamed..." The examiner takes the position that it is unclear whether only the heat-conditioning step is intended to be optional, or if the foaming process is optional as well. The examiner further notes that it is unclear how a process in which the final step involves making a foam results in the production of a foamable polymer.

5. Claim 5 recites a poly(meth)acrylimide foam "obtained via foaming of a polymer according to the process of claim 1. The examiner notes that the process of claim 1 is stated to be a process of producing a foamable polymer, not a process of foaming a polymer.

6. Claims 5-12 recite a poly(meth)acrylimide foam obtained via the process of claim 1 and various articles comprising said foam. The examiner notes that the terms such as

"poly(meth)acrylimide" are typically used in the art as shorthand to simultaneously refer to both polymethacrylimide and polyacrylimide. As claim 1 requires that the polymer be prepared from methacrylic acid and methacrylonitrile, the examiner takes the position that it is unclear how the a polymer foam obtained according to the process of claim 1 can be a polyacrylimide foam.

7. Claim 7 recites "A motor vehicle, a rail vehicle....or a spacecraft comprising" and therefore attempts to recite claims to many separate products. The examiner suggests amending the claim to read a vehicle comprising the poly(meth)acrylimide foam, wherein said vehicle is chosen from the desired group.

#### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-5, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geyer et al, US5928459, in view of Tada et al, US5225449.

11. Geyer discloses a method of producing a polymethacrylimide foam comprising the steps of preparing a monomer mixture, shaping said monomer mixture into the form of a sheet, polymerizing the monomers in said sheet, and subsequently foaming the polymerize sheet at a temperature of 200 to 260 °C (claim 1). Said monomer mixture consists of (a) 40 to 60% by weight methacrylonitrile; (b) 40 to 60% by weight methacrylic acid; (c) up to 20% by weight of a copolymerizable monomer; (d) 0.5 to 8% by weight of a propellant mixture, corresponding to the claimed blowing agent; (e) 0.005 to 5% by weight of a cross-linking monomer/agent, and (f) a polymerization initiator and optional additive (claims 1, 3, 5) (Column 3, lines 10-35). Said polymerization initiator is added in amounts of 0.01 to 0.3% by weight (claims 1, 3, 5) (Column 6, lines 20-22).

12. Geyer discloses that the copolymerizable monomer (c) may be an ester of (meth)acrylic acid and a C1-C4 alcohol. Geyer does not specifically recite the use of t-butyl (meth)acrylate in the preparation of the polymer foams of US5928459.

13. Tada teaches the preparation of polymer foams prepared from copolymers of (meth)acrylic acid, (meth)acrylonitrile, and t-butyl (meth)acrylate, wherein the polymer contains 5 to 50% by weight t-butyl (meth)acrylate (abstract) (claims 1-4). Tada teaches that the addition of t-butyl (meth)acrylate results in the production of foams characterized by low water absorbing properties and fine cell structure (Column 2, lines 31-34). Tada teaches that such foams can be used in the production of parts for airplanes (claims 7, 8) (abstract).

14. Both Geyer and Tada disclose the production of foams from copolymers of methacrylic acid and methacrylonitrile. As Geyer generically teaches the incorporation of up to 20% by weight of esters of (meth)acrylic esters in the polymer foam of US5928459, the examiner takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process/foam disclosed by Geyer by including up to 20% by weight t-butyl (meth)acrylate as the copolymerizable monomer, for the purpose of obtaining a foam having low water absorption properties (claims 1-5).

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Geyer et al, US5928459, and Tada et al, US5225449, as applied to claim 5 above, and further in view of Stein et al, WO 03/020804. Stein et al, US2004/0235973, has been utilized herein as an equivalent English translation of WO 03/020804.

16. Neither Geyer nor Tada discloses the production of a laminated material comprising a polymethacrylimide foam.

17. Stein discloses that, owing to their excellent mechanical properties, it was known in the art to use polymethacrylimide foams for the production of laminate materials (¶0002).

18. As taught by Stein, it was known in the art to use polymethacrylimide foams for the production of Laminate materials. The examiner therefore takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was

made to use the polymethacrylimide foam rendered obvious by the combination of Geyer and Tada to manufacture a laminate material;, to produce a greater diversity of marketable products.

19. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Geyer et al, US5928459, and Tada et al, US5225449, as applied to claim 5 above, and further in view of Wu et al, US6396451.

20. Neither Geyer nor Tada discloses the production of an antenna comprising a polymethacrylimide foam.

21. Wu discloses the production of an antenna comprising a foam spacer, wherein said foam spacer may be made from polymethacrylimide foam (claim 9) (see Wu, claims 9 and 10).

22. As taught by Wu, it was known in the art to use polymethacrylimide foams in the production of antennae. The examiner therefore takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the polymethacrylimide foam rendered obvious by the combination of Geyer and Tada in the manufacturing of an antenna;, to produce a greater diversity of marketable products.

23. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Geyer et al, US5928459, and Tada et al, US5225449, as applied to claim 5 above, and further in view of Zacharopoulos et al, US2004/0034932.

24. Neither Geyer nor Tada discloses the production of an X-ray table comprising a polymethacrylimide foam.

25. Zacharopoulos discloses a patient support system for medical treatments such as CT scanning comprising a table (§0004, Figure 1), wherein said table comprises a foam core made from materials such as Rohacell® polymer foam (claim 10) (§0053). The examiner notes that the name Rohacell® refers to polymethacrylimide foam manufactured by Evonik Industries.

26. As taught by Zacharopoulos, it was known in the art to use polymethacrylimide foams for the production of tables for x-ray machines/CT scanners. The examiner therefore takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the polymethacrylimide foam rendered obvious by the combination of Geyer and Tada to manufacture a X-ray table, to produce a greater diversity of marketable products.

27. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Geyer et al, US5928459, and Tada et al, US5225449, as applied to claim 5 above, and further in view of Nieuwendijk et al, US4847908.

28. Neither Geyer nor Tada discloses the production of a loudspeaker comprising a polymethacrylimide foam.

29. Nieuwendijk discloses a car loudspeaker (abstract) wherein a central part is composed of a polymethacrylimide foam (claim 11) (Column 4, lines 53-55).



30. As taught by Nieuwendijk, it was known in the art to use polymethacrylimide foams for the production of loudspeakers. The examiner therefore takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the polymethacrylimide foam rendered obvious by the combination of Geyer and Tada to manufacture a loudspeaker, to produce a greater diversity of marketable products.

31. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Geyer et al, US5928459, and Tada et al, US5225449, as applied to claim 5 above, and further in view of Baumann et al, US2002/0037955.

32. Neither Geyer nor Tada discloses the production of a pipe comprising a polymethacrylimide foam.

33. Baumann discloses a three layer pipe comprising a barrier layer prepared from a vinylidene fluoride polymer and polymethacrylimide (claim 12) (§0060-0063).

34. As taught by Baumann, it was known in the art to use polymethacrylimides for the production of pipes. The examiner therefore takes the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the polymethacrylimide foam rendered obvious by the combination of Geyer and Tada to manufacture a pipe, to produce a greater diversity of marketable products.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Lenihan whose telephone number is (571)270-5452. The examiner can normally be reached on Monday through Thursday from 7:30-5:00 PM, and on alternate Fridays from 7:30-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James J. Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/  
Primary Examiner, Art Unit 1796

Jeffrey Lenihan  
Examiner, Art Unit 1796

/JL/